

Appl. No. 10/048,187
Amdt. Dated January 8, 2004
Reply to office Action of Nov. 5, 2003

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-9 (canceled)

Claim 10 (new): A roller chain for moving a web of textile material in a tenter frame, the roller chain comprising:

(a) a plurality of inner members each comprising two substantially parallel inner tabs;

(b) a plurality of outer members each comprising two substantially parallel outer tabs;

(c) a bolt disposed at each end of said plurality of outer members for coupling said substantially parallel outer tabs together;

(d) a sleeve disposed at each end of said plurality of inner members for coupling said substantially parallel inner tabs together, said sleeve having a lubrication hole disposed therein, wherein said sleeve is disposed coaxially on said bolt in a rotatable manner, flexibly coupling said inner members and

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said outer members to each other in an alternating manner;

(e) a lubrication channel disposed in an interior of said bolt and in fluid communication with a radial branch disposed in said interior of said bolt;

(f) a running roller comprising:

(i) an inner ring rigidly coupled to said sleeve;

(ii) an outer ring coaxial to said inner ring;

(iii) a plurality of balls disposed between said inner ring and said outer ring; and

(iv) a sealing ring disposed at each end of said inner ring and said outer ring, forming a ball bearing assembly having an interior, wherein said sealing ring is made substantially of plastic and is rigidly secured to an adjacent inner tab and wherein said sealing ring has a lubrication groove formed in a surface of said sealing ring facing said interior of said ball bearing assembly, said lubrication groove in fluid communication with said lubrication channel, said radial branch and said lubrication hole; and

(g) a spacing element integrated with said sealing ring, said spacing element comprising a plurality of individual

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metallic inserts distributed approximately equally in a circumferential orientation on a ring area of said sealing ring, wherein a thickness of said individual metallic inserts is equal to or greater than a thickness of said sealing ring in an axial direction and wherein a total cross section of said individual metallic inserts is smaller than a cross section of said ring area in a plane of said sealing ring;

wherein said spacing element transmits an axial force which is applied when said inner tabs are rigidly pressed onto said sleeve directly to said inner ring, thereby substantially eliminating a stress on said sealing ring.

Claim 11 (new): The roller chain according to claim 10, wherein said individual metallic inserts have a hardness on the order of magnitude of a hardness of said inner tabs and said inner ring.

Claim 12 (new): The roller chain according to claim 10, further comprising a sliding bush rigidly installed between said bolt and said sleeve, said sliding bush having a passage hole in fluid communication with said lubrication groove, said lubrication hole, said radial branch and said lubrication channel.

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Claim 13 (new): The roller chain according to claim 10, wherein said individual metallic inserts comprise a plurality of balls.

Claim 14 (new): The roller chain according to claim 10, wherein said individual metallic inserts comprise three individual metallic inserts.

Claim 15 (new): The roller chain according to claim 10, wherein said individual metallic inserts comprise four individual metallic inserts.

Claim 16 (new): The roller chain according to claim 10, further comprising a second lubrication groove diametrically opposed to said lubrication groove.

Claim 17 (new): The roller chain according to claim 10, wherein said lubrication groove extends radially with respect to a longitudinal axis of said ball.

Claim 18 (new): The roller chain according to claim 10 wherein said lubrication groove further comprises a reversing barrier for directing an injected lubricant in an axial direction

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toward said interior of said ball bearing assembly.

Claim 19 (new): The roller chain according to claim 10 further comprising a cam disposed between an outer surface of said sealing ring and said adjacent inner tab, wherein said cam rigidly secures said sealing ring to said adjacent inner tab.

Claim 20 (new): A roller chain for moving a web of textile material in a tenter frame, the roller chain comprising:

- (a) a plurality of inner members each comprising two substantially parallel inner tabs;
- (b) a plurality of outer members each comprising two substantially parallel outer tabs;
- (c) a bolt disposed at each end of said plurality of outer members for coupling said substantially parallel outer tabs together;
- (d) a sleeve disposed at each end of said plurality of inner members for coupling said substantially parallel inner tabs together, said sleeve having a lubrication hole disposed therein, wherein said sleeve is disposed coaxially on said bolt in a

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rotatable manner, flexibly coupling said inner members and said outer members to each other in an alternating manner;

(e) a lubrication channel disposed in an interior of said bolt and in fluid communication with a radial branch disposed in said interior of said bolt;

(f) a running roller comprising:

(i) an inner ring rigidly coupled to said sleeve;

(ii) an outer ring coaxial to said inner ring;

(iii) a sealing ring disposed at each end of said inner ring and said outer ring, forming a bearing assembly having an interior, wherein said sealing ring is made substantially of plastic and is rigidly secured to an adjacent inner tab and wherein said sealing ring has a lubrication groove formed in a surface of said sealing ring facing said interior of said bearing assembly, said lubrication groove in fluid communication with said lubrication channel, said radial branch and said lubrication hole; and

(g) a spacing element integrated with said sealing ring, said spacing element comprising a plurality of individual metallic inserts distributed approximately equally in a circumferential orientation on a ring area of said sealing ring ,

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wherein a thickness of said individual metallic inserts is equal to or greater than a thickness of said sealing ring in an axial direction and wherein a total cross section of said individual metallic inserts is smaller than a cross section of said ring area in a plane of said sealing ring;

wherein said spacing element transmits an axial force which is applied when said inner tabs are rigidly pressed onto said sleeve directly to said inner ring, thereby substantially eliminating a stress on said sealing ring.